

In the Claims

The following is a complete listing of the claims and replace all prior claims in the application:

1 1-34. (Canceled)

1 35. (New) A hermetically sealed hard disk drive (HDD) enclosure, comprising:
2 an aluminum alloy housing comprising two sides, a bottom and a connector opening
3 in the bottom of the housing;
4 a hard disk drive assembly disposed within the housing;
5 fasteners disposed along the inside bottom of the housing for fastening the hard disk
6 drive assembly only to the bottom of the housing without creating an opening in the housing;
7 a multi-pin feedthrough disposed within the connector opening in the bottom of the
8 housing, the multi-pin connector comprising a flange having a plurality of signal pins being
9 disposed within openings therein, wherein ceramic beads seal the openings between the
10 signal pins and the flange;
11 a coalesced metal joint securing the multi-pin feedthrough to the opening of the
12 housing and providing a first hermetic seal;
13 a first lid disposed over the hard disk drive assembly and coupled to a flange in the
14 side walls of the housing via a non-hermetic seal;
15 a pressure sensitive adhesive disposed over the first lid;
16 a second lid disposed over the first lid, the second lid comprising an aluminum alloy
17 and being engaged by the pressure sensitive adhesive disposed over the first lid; and
18 a laser weld formed between the second lid and the housing along the periphery of the
19 second lid, the laser weld providing a second hermetic seal.

1 36. (New) The hermetically sealed HDD enclosure of claim 35 further comprises
2 a pressure sensitive adhesive disposed over the second lid and a dampening plate adhered to
3 the second lid via the pressure sensitive adhesive disposed over the second lid.

1 37. (New) The hermetically sealed HDD enclosure of claim 36, wherein the
2 ceramic beads comprise glass.

1 38. (New) The hermetically sealed HDD enclosure of claim 37 further
2 comprising a low density, low-humidity gas disposed within the housing.

1 39. (New) The hermetically sealed HDD enclosure of claim 38, wherein the
2 housing has a solidification temperature substantially equal to a solidification temperature of
3 the second lid.

1 40. (New) The hermetically sealed HDD enclosure of claim 35, wherein the
2 ceramic beads comprise glass.

1 41. (New) The hermetically sealed HDD enclosure of claim 35 further
2 comprising a low density, low-humidity gas disposed within the housing.

1 42. (New) The hermetically sealed HDD enclosure of claim 35, wherein the
2 housing has a solidification temperature substantially equal to a solidification temperature of
3 the second lid.

1 43. (New) The hermetically sealed HDD enclosure of claim 35, wherein the
2 housing comprises a cold-forged aluminum alloy housing.

1 44. (New) The hermetically sealed HDD enclosure of claim 35, wherein the
2 housing comprises a die-cast aluminum alloy housing.

1 45. (New) The hermetically sealed HDD enclosure of claim 35, wherein the
2 coalesced metal joint comprises a weld.

1 46. (New) The hermetically sealed HDD enclosure of claim 35, wherein the
2 coalesced metal joint comprises a solder joint.

1 47. (New) The hermetically sealed HDD enclosure of claim 35, wherein the
2 feedthrough flange and the housing have substantially similar expansion coefficients.

1 48. (New) The hermetically sealed HDD enclosure of claim 35 further
2 comprising a temperature sensor disposed within the housing with the hard disk drive
3 assembly, the temperature sensor being configured and arranged to detect the temperature in
4 the housing for adjusting operational parameters of the hard disk drive assembly as a function
5 of the detected temperature.

1 49. (New) The hermetically sealed HDD enclosure of claim 35, wherein the
2 aluminum alloy housing comprises an eutectic aluminum alloy housing.

1 50. (New) The hermetically sealed HDD enclosure of claim 35, wherein the
2 second lid has a thickness less than a thickness of the first lid and has a low solidification
3 temperature and a high cracking resistance.

1 51. (New) The hermetically sealed HDD enclosure of claim 35, wherein the
2 housing further comprises a step for holding the feedthrough flange.

1 52. (New) The hermetically sealed HDD enclosure of claim 35, wherein the
2 housing includes a flange-housing interface comprising a solder channel for holding solder
3 therein.

1 53. (New) The hermetically sealed HDD enclosure of claim 35, wherein the
2 housing and the second lid comprise an aluminum alloy of about 88% aluminum and 12%
3 silicon.

1 54. (New) A computer system, comprising:
2 a central processor;
3 a hermetically sealed hard disk drive; and
4 a communications link coupled and adapted to pass signals between the processor and
5 the hermetically sealed hard disk drive;
6 wherein the hermetically sealed hard disk drive comprises:
7 an aluminum alloy housing comprising two sides, a bottom and a connector
8 opening in the bottom of the housing;
9 a hard disk drive assembly disposed within the housing;
10 fasteners disposed along the inside bottom of the housing for fastening the
11 hard disk drive assembly to the bottom of the housing only without creating an opening in the
12 housing;
13 a multi-pin feedthrough disposed within the connector opening in the bottom
14 of the housing, the multi-pin connector comprising a flange having a plurality of signal pins
15 being disposed within openings therein, wherein ceramic beads seal the openings between
16 the signal pins and the flange;
17 a coalesced metal joint securing the multi-pin feedthrough to the opening of
18 the housing and providing a first hermetic seal;
19 a first lid disposed over the hard disk drive assembly and coupled to a flange
20 in the side walls of the housing via a non-hermetic seal;
21 a pressure sensitive adhesive disposed over the first lid;
22 a second lid disposed over the first lid, the second lid comprising an aluminum
23 alloy and being engaged by the pressure sensitive adhesive disposed over the first lid; and

24 a laser weld formed between the second lid and the housing along the
25 periphery of the second lid, the laser weld providing a second hermetic seal.

1 55. (New) The computer system of claim 54 further comprises a pressure
2 sensitive adhesive disposed over the second lid and a dampening plate adhered to the second
3 lid via the pressure sensitive adhesive disposed over the second lid.

1 56. (New) The computer system of claim 55, wherein the ceramic beads comprise
2 glass.

1 57. (New) The computer system of claim 56 further comprising a low density,
2 low-humidity gas disposed within the housing.

1 58. (New) The computer system of claim 57, wherein the housing has a
2 solidification temperature substantially equal to a solidification temperature of the second lid.

1 59. (New) The computer system of claim 54, wherein the ceramic beads comprise
2 glass.

1 60. (New) The computer system of claim 54 further comprising a low density,
2 low-humidity gas disposed within the housing.

1 61. (New) The computer system of claim 54, wherein the housing has a
2 solidification temperature substantially equal to a solidification temperature of the second lid.

1 62. (New) The computer system of claim 54, wherein the housing comprises a
2 cold-forged aluminum alloy housing.

1 63. (New) The computer system of claim 54, wherein the housing comprises a
2 die-cast aluminum alloy housing.

1 64. (New) The computer system of claim 54, wherein the coalesced metal joint
2 comprises a weld.

1 65. (New) The computer system of claim 54, wherein the coalesced metal joint
2 comprises a solder joint.

1 66. (New) The computer system of claim 54, wherein the feedthrough flange and
2 the housing have substantially similar expansion coefficients.

1 67. (New) The computer system of claim 54 further comprising a temperature
2 sensor disposed within the housing with the hard disk drive assembly, the temperature sensor
3 being configured and arranged to detect the temperature in the housing for adjusting
4 operational parameters of the hard disk drive assembly as a function of the detected
5 temperature.

1 68. (New) The computer system of claim 54, wherein the aluminum alloy
2 housing comprises an eutectic aluminum alloy housing.

1 69. (New) The computer system of claim 54, wherein the second lid has a
2 thickness less than a thickness of the first lid and has a low solidification temperature and a
3 high cracking resistance.

1 70. (New) The computer system of claim 54, wherein the housing further
2 comprises a step for holding the feedthrough flange.

1 71. (New) The computer system of claim 54, wherein the housing includes a
2 flange-housing interface comprising a solder channel for holding solder therein.

1 72. (New) The computer system of claim 54, wherein the housing and the second
2 lid comprise an aluminum alloy of about 88% aluminum and 12% silicon.

1 73. (New) A method for manufacturing a hard disk drive (HDD) enclosure, the
2 method comprising:
3 forming an aluminum alloy housing comprising two sides, a bottom and a connector
4 opening in the bottom of the housing;
5 fastening a hard disk drive assembly disposed within the housing along the inside
6 bottom of the housing only without creating an opening in the housing;
7 positioning a multi-pin feedthrough within the connector opening in the bottom of the
8 housing, the multi-pin connector comprising a flange having a plurality of signal pins being
9 disposed within openings therein,
10 forming a coalesced metal joint to secure the multi-pin feedthrough to the opening of
11 the housing and to provide a first hermetic seal;
12 sealing the openings between the signal pins and the flange using ceramic beads that
13 expand when the coalesced metal joint is formed;
14 placing a first lid over the hard disk drive assembly;
15 coupling the first lid to a flange in the side walls of the housing using a non-hermetic
16 seal;
17 depositing a pressure sensitive adhesive over the first lid;
18 placing, over the first lid, a second lid, the second lid comprising an aluminum alloy
19 and engaging the pressure sensitive adhesive disposed over the first lid; and
20 laser welding the second lid and the housing along the periphery of the second lid to
21 form a second hermetic seal.

1 74. (New) The method of claim 73 further comprising providing a low density,
2 low-humidity gas within the housing prior to laser welding the second lid and housing
3 together.

1 75. (New) The method of claim 73, wherein the forming a coalesced metal joint
2 to secure the multi-pin feedthrough to the opening of the housing and to provide a first
3 hermetic seal further comprises welding the multi-pin feedthrough to the opening of the
4 housing.

1 76. (New) The method of claim 73, wherein the forming a coalesced metal joint
2 to secure the multi-pin feedthrough to the opening of the housing and to provide a first
3 hermetic seal further comprises soldering the multi-pin feedthrough to the opening of the
4 housing.

1 77. (New) The method of claim 73 further comprising;
2 disposing a temperature sensor within the housing with the hard disk drive assembly;
3 detecting temperature in the housing;
4 adjusting operational parameters of the hard disk drive assembly as a function of the
5 detected temperature.

1 78. (New) The method of claim 73, wherein the forming an aluminum alloy
2 housing further comprises a step for holding the feedthrough flange.

1 79. (New) The method of claim 73, wherein the forming an aluminum alloy
2 housing further comprises forming a flange-housing interface having a solder channel for
3 holding solder therein.

1 80. (New) The method of claim 73, wherein the aluminum alloy housing and the
2 second lid further comprise an aluminum alloy of about 88% aluminum and 12% silicon.